STATE OF ILLINOIS

ENVIRONMENTAL PROTECTION AGENCY

DIVISION OF LAND/NOISE POLLUTION CONTROL

GROUNDWATER WITHDRAWALS FROM AQUIFERS IN ILLINOIS WITH EMPHASIS ON PWS WELLS

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AQUIFERS OF ILLINOIS

Subsequent to consultation with the ISGS and ISWS, the IEPA identified the aquifers in Illinois. These aquifers are shown in descending order in Table B.

Table B. Aquifers of Illinois

Name of aquifers (abbreviation)		General lithology
Quaternary	(Q)	Sands and gravels**
Cretaceous-Tertiary	(K-T)	Sands and gravels**
Pennsylvanian	(Pen)	Sandstones, limestones, and coals**
Chesterian	(MCh)	Sandstones and limestones**
Valmeyeran	(MVa)	Sandstones and limestones
Silurian-Devonian	(S-D)	Dolomites and limestones
*Maquoketa	(Maq)	Dolomites and fractured shales**
Galena-Platteville	(G-P)	Dolomites and limestones
Glenwood-St. Peter	(G-StP)	Sandstones
*Prairie du Chien	(PduC)	Dolomites and sandstones
Eminence-Potosi	(E-P)	Dolomites
*Franconia	(F)	Sandy dolomites
Ironton-Galesville	(I-G)	Sandstones
Elmhurst-Mt. Simon	(E-MtS)	Sandstones

* Considered of minor importance, refer to text for details

**Rock types listed may be water yielding but generally make up less than half of the total rock thickness in the indicated units.

Properties of these aquifers are briefly described under the heading "Description of Aquifers Utilized by PWS Wells". Their detailed discussion are included in another report entitled "Aquifers of Illinois: Underground Sources of Drinking Water and Non-Drinking Water" by Student et al. (1981). Some of these aquifers are hydrologically connected and are identified as hydrostratigraphic units in parts of the State. One of the best known hydrostratigraphic units in northern Illinois is the Cambrian-Ordovician aquifer which consists of the Ironton-Galesville, Franconia, Eminence-Potosi, Prairie du Chien, Glenwood-St. Peter, and the Galena-Platteville. However, the IEPA has elected to retain individual aquifer designations due to variations in aquifer properties over a statewide basis. The wells in various use categories primarily obtain water from either the individual aquifers in Table B or any combination of them.

As indicated in Table B, three of these aquifers, the Maquoketa, Prairie du Chien, and Franconia are of "minor" importance. In the case of the Maquoketa, lithologic variations from fractured limestone, dolomite, and shales to a predominate shale group, cause a reduction of water yielding capability. Indeed, over a larger portion of Illinois, the Maquoketa is more often considered an aquitard or a confining bed rather than an aquifer. The Prairie du Chien and the Franconia are usually left open to multiple aquifer wells which penetrate to deeper sandstone aquifers. Their respective yields relative to the deeper aquifers, such the Ironton-Galesville and the Elmhurst-Mt. Simon, are of lesser quantities.

Table 1. Quaternary aquifer, public water supply wells (con't)

County	Pumping facility	Population (pop./yr)	Average daily pumpage of facility (gpd/yr)	No. of wells	Well location (sec.,T/R)	Well depth (feet)	Well yield (gpm)	Remarks
Macon	Oreana	1,092	62,000/77	2	9,17N-3E	132	60-110	
	Warrensburg	1,165/74	85,000/74	2	10,14,17N-1E	118-132	125-152	
Macoupin	Chesterfield	262	15,000/76	1	8,9N-9W	50	35	
Madison	Alhambra	594	40,000/75	3	4,5N-6W	80-82	100-133	Wells alternate
	Bethalto	10,031	1,248,500/76	9	22,5N-9W	90-98	190-700	Also supplies Meadowbrook P.W.D. and Moro P.W.D.
	Collinsville	19,567	2,070,000/75	4	31,3N-8W	99-103	900-1050	
	East Alton	7,669/72	568,600/75	3	17,5N-9W	90-103	400	Cross-connected with Wood River
	Edwardsville	11,070	1,334,600/75	4	13,4N-9W	114-117	650-1500	
	Forrest Homes-Maple Park P.W.D.	1,855/75	75,000/75	2	2,5N-9W	66-67	80	
	Glen Carbon	3,082/75	304,700/75	3	5,3N-8W	99-106	500	
	Hamel	454	75,000/77	3	7,18,5N-6W	110-113	40-45	
	Hartford	2,243	393,800/74	4	4,4N-9W	106-115	276-600	
	Livingston	916	61,200/75	1	Unknown	140	80	
	Marine	882	58,700/75	2	20,4N-6W	86-90	43-80	
	Maryville	1,290	200,000/75	2	5,3N-8W	100-102	150	Cross-connected with Troy

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County	Pumping facility	Population (pop./yr)	Average daily pumpage of facility (gpd/yr)	No. of wells	Well location (sec.,T/R)	Well depth (feet)	Well yield (gpm)	Remarks
Madison	Roxanna	° 4,123	624,100/75	4 (2)	27,5N-9W	120-126	500-Un	Also supplies S. Roxanna
	Troy	2,144	623,200/74	2	20,3N-8W	115	300-410	Cross-connected with Maryville
	Wood River	13,186	1,283,600/75	5 (1)	28,5N-9W	76-95	850-1000	Cross-connected with East Alton, wells alternate
	Worden	1,091	75,000/78	3	28,6N-7W	43-46	20-35	
Marshall	Henry	2,610	384,000/76	2	16,13N-10E	62-75	500	
	Lacon	2,147	275,000/76	3	26,30N-3W	49-50	230-400	
	LaRose	165	10,000/76	2	16,29N-1W	47	50	
	Magnolia (Putnam Co.)	328	* 33,000/76	1	2,30N-1W	138	100	See tables 1 & 3 (Putnam Co.)
	Sparland	585	60,000/76	2	14,12N-9E	30-34	100	
	Wenona	1,080	* 85,000/76	1	24,30N-1E	62	60	See table 13
Mason	Easton	386	24,000/78	2	25,21N-7W	135-138	150	
	Havana	4,376	810,000/77	3	1,21N-9W 6,21N-8W	78-96	630-650	
	Manito	1,334	105,000/76	3	21,23N-6W	81-100	55-300	
	Mason City	2,611	380,000/78	3	8,20N-5W	198-222	140-500	